

## CLAIMS

- 1 1. A method for selecting a coprocessor from a plurality of coprocessors to process a
- 2 packet of a predetermined size, the method comprising the steps of:
  - 3 determining a cost associated with the packet, the cost representing a load associ-
  - 4 ated with processing the packet;
  - 5 determining an anticipated load for each coprocessor in the plurality of coproces-
  - 6 sors using the cost; and
  - 7 selecting the coprocessor from the plurality of coprocessors based on the antici-
  - 8 pated load.
  
- 1 2. The method of claim 1 wherein the step of determining a cost further comprising
- 2 the step of:
  - 3 calculating the cost using a rate associated with processing the packet.
  
- 1 3. The method of claim 2 wherein the rate is stored in a lookup table.
  
- 1 4. The method of claim 2 wherein the step of calculating the cost further comprising
- 2 the step of:
  - 3 dividing the packet's size by the rate.
  
- 1 5. The method of claim 2 wherein the step of calculating the cost further comprising
- 2 the step of:
  - 3 multiplying the packet's size by a multiplicative inverse of the rate.
  
- 1 6. The method of claim 1 wherein the step of determining a cost further comprising
- 2 the step of:
  - 3 applying the packet's size to a lookup table containing one or more cost values to
  - 4 determine the cost.

1    7.    The method of claim 1 wherein the step of determining an anticipated load further  
2    comprising the step of:

3         adding the cost to a cumulative load associated with each coprocessor in the plu-  
4         rality of coprocessors.

1    8.    The method of claim 1 wherein the step of selecting the coprocessor further com-  
2    prising the step of:

3         selecting the coprocessor from a group of one or more coprocessors whose antici-  
4         pated load is a minimum load.

1    9.    The method of claim 8 wherein the coprocessor is selected using a scheduling al-  
2    gorithm.

1    10.   The method of claim 1 wherein the step of selecting the coprocessor further com-  
2    prising the step of:

3         determining if a port associated with the packet is congested.

1    11.   The method of claim 10 wherein the step of selecting the coprocessor further  
2    comprising the step of:

3         selecting the coprocessor from a group of one or more coprocessors whose antici-  
4         pated load is not a minimum load.

1    12.   The method of claim 10 wherein the step of selecting the coprocessor further  
2    comprising the step of:

3         selecting the coprocessor from a group of one or more coprocessors whose antici-  
4         pated load is a minimum load.

1    13.   The method of claim 1 further comprising the step of:

2         incrementing a cumulative load associated with the selected coprocessor.

1 14. The method of claim 13 wherein the step of incrementing a cumulative load fur-  
2 ther comprising the step of:  
3 adding the cost to the cumulative load.

1 15. The method of claim 1 further comprising the step of:  
2 decrementing a cumulative load associated with the selected coprocessor.

1 16. The method of claim 15 wherein the step of decrementing a cumulative load fur-  
2 ther comprising the steps of:  
3 subtracting the cost from the cumulative load.

1 17. An apparatus for selecting a coprocessor from a plurality of coprocessors to proc-  
2 ess a packet of a predetermined size, the apparatus comprising:  
3 a memory containing one or more software routines, including a software routine  
4 configured to determine a cost associated with the packet, the cost representing a load  
5 associated with processing the packet; and  
6 a processor configured to execute the software routines to determine an antici-  
7 pated load for each coprocessor in the plurality of coprocessors using the cost and to se-  
8 lect the coprocessor from the plurality of coprocessors based on the anticipated load.

1 18. The apparatus of claim 17 further comprising:  
2 a data structure;  
3 wherein the cost is determined using information contained in the data structure.

1 19. The apparatus of claim 18 wherein the information contained in the data structure  
2 includes the cost.

1 20. The apparatus of claim 18 wherein the information contained in the data structure  
2 includes a rate the coprocessor can process the packet.

1    21. An intermediate device configured to select a coprocessor from a plurality of co-  
2    processors to process a packet of a predetermined size, the intermediate device comprising:  
3    ing:

4        means for determining a cost associated with the packet, the cost representing a  
5        load associated with processing the packet;

6        means for determining an anticipated load for each coprocessor in the plurality of  
7        coprocessors using the cost; and

8        means for selecting the coprocessor based on the anticipated load.

1    22. A computer readable media comprising:

2        the computer readable media containing computer executable instructions for  
3        execution in a processor for the practice of the method of claim 1.